

PCI Hot Plug User Guide for Microsoft® Windows® Server 2003



May 2004 (Third Edition)
Part Number 357858-003

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Contents

Introduction.....	5
Overview	5
Setup	5
Hot-Plug Addition	6
Hardware Interface for HP Integrity Servers (except for the HP Integrity Superdome).....	6
Hardware Interface for the HP Integrity Superdome	6
Software Interface	7
Hot-Plug Deletion	8
Hardware Interface (except for the HP Integrity Superdome)	8
Hardware Interface for the HP Integrity Superdome	8
Software Interface (except for the HP Integrity Superdome)	9
Software Interface for the HP Integrity Superdome	9
Trouble shooting tips	9
If Hot-Plug operation fails on the HP Integrity Superdome and rx8620/rx7620 check that the driver is installed.....	9
Hotplug – Activating a PCI slot that is already powered on.....	9
A slot should not be turned on if there are no cards present	10
How long does the slot blink after the card has been removed, or until you add another card in its place?.....	10
To turn off the I/O slot power with the PCIOLAD command, what I/O slot LED do I expect to see?	10
What I/O slot LED do I expect to see if the PCI slot power is OFF?	10

Introduction

This document discusses how to perform a hot plug operation on an HP Integrity server with Microsoft® Windows® Server 2003.

Overview

- **Attention button**

The attention button allows the user to initiate a hot-plug operation. The HP Integrity rx8620/rx7620 has white (bell image) buttons located at the top rear of the PCI slot. To access, remove the button cover. The HP Integrity rx4640 has maroon colored buttons on the top of the PCI slot separator. The HP Integrity Superdome server does not have attention buttons.

- **MRL latch**

The MRL sensor is activated by the manual retention latch (MRL). When the MRL is open, the power is turned off to the slot to prevent electrical damage to the card and the system. The HP Integrity rx8620/rx7620 has a blue lever at the top rear of the PCI slot . The HP Integrity rx4640 has a black lever at the rear of the PCI slot and a black latch at the rear of the PCI slot separator. The HP Integrity Superdome server does not have MRL latches.

- **Power indicator**

The green Power indicator LED is located at the top of the slot separator on all HP Integrity servers. When this indicator is on, the slot is powered and should not be disturbed. When the indicator is off, it is safe to add or remove a PCI card to/from the slot.

- **On-line Replacement**

Windows does not natively support I/O card on-line replacement. Such an action requires two steps: the first is hot-plug deletion and then the second step is hot-plug addition. Therefore, some applications will notice the loss of an adapter.

Setup

1. The HP Integrity rx8620/rx7620/Superdome requires the latest version of the OpRegion driver, (1.1.0.0 dated 6/13/03) installed. This driver is not required on the HP Integrity rx4640.
2. In the HP Integrity rx4640 server slots 2-3 and 4-5 are shared PCI hot plug slots. For optimal hot plug operation, the same type of PCI cards should be used in shared slots. For example, if a PCI-X 133MHZ card is in slot 4, the insertion of a PCI-66MHZ card in slot 5 will fail because the slot will have been set at 133 MHz. However, if a PCI-66MHZ card is in slot 3, the insertion of a PCI-X 133MHZ in slot 2 will be successful, although both cards will run at 66 MHz. The HP Integrity rx8620/rx7620 does not have shared slots and is not subject to the restrictions of the HP Integrity rx4640.
3. Ensure that the server has the latest version of the system firmware.
4. Ensure Microsoft Windows Server 2003 is installed.

Hot-Plug Addition

This section describes how to perform a hot-plug addition on an HP Integrity Server with Windows Server 2003.

Hardware Interface for HP Integrity Servers (except for the HP Integrity Superdome)

1. Locate an empty slot.
2. In the unlikely event that the power light is on for the slot, press the attention button to start the power down sequence. (If the power light is not on, you do not need to press the attention button). The power LED will blink for 5 seconds. While the power LED is flashing, you may cancel the power down by pressing the attention button again.
3. Wait for the slot to power down (green power indicator LED will turn off).
4. Open the MRL.
5. Add the PCI card to the slot.
6. Close the MRL.
7. Press the attention button of the slot. The power LED will again blink for 5 seconds. While the power LED is blinking, you may abort the request by pressing the attention button.

Windows loads and starts the drivers for all functions of the device or prompts the user to install the driver(s) for the new card.

The system should begin using the device normally.

8. Check the device manager for the device just installed. If the device is not present, the addition failed.

Hardware Interface for the HP Integrity Superdome

1. Locate an empty slot. The user must note the Cabinet number, I/O Bay number, I/O Chassis number, and the PCI slot number. All are marked on the Cabinet and/or I/O Chassis.
2. Insert the card into the slot. Power should be off on all unused slots but check power LED before making the insertion.
3. From the MP command window type **pciolad**. You will see the following:

This command initiates the activation or deactivation of a PCI card.

Note : Activate is equivalent to Add/Insert, and

Deactivate is equivalent to Remove/Eject

Do you want to Activate or Deactivate a PCI card (A,D) : a

Enter cabinet number: w

Enter IO bay number: x

Enter IO chassis number: y

Enter PCI slot number: z.

Activate PCI card in Cabinet w, IO Bay x, IO Chassis y, PCI Slot z? (Y/[N]) y

Request to Activate PCI card sent to system. Check slot power LED.

MP:CM>

4. Check that the slot power LED, found by looking down through top of chassis, is solidly on indicating the slot is powered. If the green LED is not on solidly, the power to the slot is not on and the addition of the card failed.
5. Check the device manager for the device just installed. If the device is not present, the addition failed.

Software Interface

This is not supported because Windows does not have a native interface for HP hot plug. The Microsoft “Add Hardware Wizard” and “Scan for hardware changes” functionalities are not sufficient to power and enable these cards.

Hot-Plug Deletion

This section describes how to perform a hot-plug deletion on a Windows Server 2003.

Hardware Interface (except for the HP Integrity Superdome)

1. Locate the slot of PCI card to delete.
2. Press the attention button for the slot. The power LED will begin flashing. During the 5 seconds that the power LED is flashing, you may abort the request by pressing the attention button.

When the green LED stops blinking and goes off it is safe to remove the card.

IMPORTANT: Do not remove the card before the LED stops blinking – a fatal machine check alert (MCA) will occur.

3. Open the MRL.
4. Remove the card.
5. Close the MRL.

Hardware Interface for the HP Integrity Superdome

1. Locate slot with card to delete. The user must note the Cabinet number, I/O Bay number, I/O Chassis number, and the PCI slot number. All are marked on the Cabinet and/or I/O Chassis.

2. From the MP command window type **pciolad**. You will see the following:

This command initiates the activation or deactivation of a PCI card.

Note : Activate is equivalent to Add/Insert, and

Deactivate is equivalent to Remove/Eject

Do you want to Activate or Deactivate a PCI card (A,D) : d

Enter cabinet number: w

Enter IO bay number: x

Enter IO chassis number: y

Enter PCI slot number: z

Deactivate PCI card in Cabinet w, IO Bay x, IO Chassis y, PCI Slot z? (Y/[N]) y

Request to Deactivate PCI card sent to system. Check slot power LED.

MP:CM>

3. Check that the slot power LED, found by looking down through top of chassis, is off (the green LED becomes an orange blinking LED) indicating the slot is not powered. If the green LED is not off, the power to the slot is not off and the deletion of the card failed.
4. Remove the card.

NOTE: The preferred method for Integrity Superdome Hot-Plug deletion is through the Windows interface.

Software Interface (except for the HP Integrity Superdome)

1. Request Windows to remove the hardware using the Safely Remove Hardware launch icon in the bottom right corner of the screen.

Windows notifies the user when it is safe to remove the card. (If the user removes the card before notification by Windows that it is safe, an MCA will occur.)

2. Open the MRL.
3. Remove the card.
4. Close the MRL.

Software Interface for the HP Integrity Superdome

1. Request Windows to remove the hardware using the Safely Remove Hardware launch icon in the bottom right corner of the screen.

Windows notifies the user when it is safe to remove the card. (If the user removes the card before notification by Windows that it is safe, an MCA will occur.)

2. Remove the card.

Troubleshooting tips

If Hot-Plug operation fails on the HP Integrity Superdome and rx8620/rx7620 check that the driver is installed.

1. Bring up device manager and expand the system devices. Right-click **HPCSR OpRegion Driver**. Then click **properties**. Click the **driver** tab. The driver should be version 1.1.0.0, dated 6/5/2003. If not the driver must be updated.
2. Open the **OnlineReference** page on the desktop.
3. Click on **OEM Drivers**.
4. In the **Description** column Click on **HP (Hotplug) Region Driver**. This starts the Hot Plug driver update.
5. Answer **Yes** to install the driver.

Hotplug – Activating a PCI slot that is already powered on

Issue: If a PCI slot is already powered on and a user activates it, a solid orange attention LED light is turned on indicating an error.

If you try to activate a slot that is not occupied it will flash the attention LED to identify that slot.

Workaround: This is an expected behavior. It is not applicable.

A slot should not be turned on if there are no cards present

If you perform a **PCIOLAD - Activate** an empty slot, it should flash the Attention LED to identify the slot, and not power up the slot.

How long does the slot blink after the card has been removed, or until you add another card in its place?

This is a limitation on the HP Integrity Superdome because there are no active Latches. The firmware does not know when or if a card is removed, so it flashes the Attention LED indefinitely.

To turn off the I/O slot power with the PCIOLAD command, what I/O slot LED do I expect to see?

If the slot is already empty, you do not have to first turn off the power. The power LED is off. The Attention LED is off. If you do a PCIOLAD to an empty slot, it will flash the Attention LED.

What I/O slot LED do I expect to see if the PCI slot power is OFF?

The power LED is off, and the Attention LED is either off or blinking.